Operating Instructions
VEGABAR 14

Document ID:
22441

Process pressure

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Supplementary documentation

Information:
Supplementary documents appropriate to the ordered version come with the delivery. You can find them listed in chapter "*Product description*".

Instructions manuals for accessories and replacement parts

Tip:
To ensure reliable setup and operation of your VEGABAR 14, we offer accessories and replacement parts. The corresponding documentations are:

- 32036 - Welded socket and seals

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1 About this document

1.1 Function

This operating instructions manual provides all the information you need for mounting, connection and setup as well as important instructions for maintenance and fault rectification. Please read this information before putting the instrument into operation and keep this manual accessible in the immediate vicinity of the device.

1.2 Target group

This operating instructions manual is directed to trained qualified personnel. The contents of this manual should be made available to these personnel and put into practice by them.

1.3 Symbolism used

Information, tip, note
This symbol indicates helpful additional information.

Caution: If this warning is ignored, faults or malfunctions can result.
Warning: If this warning is ignored, injury to persons and/or serious damage to the instrument can result.
Danger: If this warning is ignored, serious injury to persons and/or destruction of the instrument can result.

Ex applications
This symbol indicates special instructions for Ex applications.

- **List**
  The dot set in front indicates a list with no implied sequence.

→ **Action**
This arrow indicates a single action.

1 **Sequence**
Numbers set in front indicate successive steps in a procedure.

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2 For your safety

2.1 Authorised personnel

All operations described in this operating instructions manual must be carried out only by trained specialist personnel authorised by the plant operator.

During work on and with the device the required personal protective equipment must always be worn.

2.2 Appropriate use

VEGABAR 14 is a pressure transmitter for measurement of gauge pressure, absolute pressure and vacuum.

You can find detailed information on the application range in chapter "*Product description*".

Operational reliability is ensured only if the instrument is properly used according to the specifications in the operating instructions manual as well as possible supplementary instructions.

For safety and warranty reasons, any invasive work on the device beyond that described in the operating instructions manual may be carried out only by personnel authorised by the manufacturer. Arbitrary conversions or modifications are explicitly forbidden.

2.3 Warning about misuse

Inappropriate or incorrect use of the instrument can give rise to application-specific hazards, e.g. vessel overfill or damage to system components through incorrect mounting or adjustment.

2.4 General safety instructions

This is a high-tech instrument requiring the strict observance of standard regulations and guidelines. The user must take note of the safety instructions in this operating instructions manual, the country-specific installation standards as well as all prevailing safety regulations and accident prevention rules.

The instrument must only be operated in a technically flawless and reliable condition. The operator is responsible for trouble-free operation of the instrument.

During the entire duration of use, the user is obliged to determine the compliance of the necessary occupational safety measures with the current valid rules and regulations and also take note of new regulations.

2.5 Safety label on the instrument

The safety approval markings and safety tips on the device must be observed.

2.6 CE conformity

This device fulfills the legal requirements of the applicable EC guidelines. By attaching the CE mark, VEGA provides a confirmation of successful testing. You can find the CE conformity declaration in the download area of www.vega.com.

2.7 Measuring range - permissible process pressure

Due to the application, a measuring cell with a measuring range higher than the permissible pressure range of the process fitting may have been integrated. The permissible process pressure is stated with "Process pressure" on the type label, see chapter 3.1 "*Configuration*". For safety reasons, this range must not be exceeded.

2.8 Fulfillment of NAMUR recommendations

With respect to interference resistance and emitted interference, the NAMUR recommendation NE 21 is fulfilled.

2.9 Safety instructions for Ex areas

Please note the Ex-specific safety information for installation and operation in Ex areas. These safety instructions are part of the operating instructions manual and come with the Ex-approved instruments.

2.10 Environmental instructions

Protection of the environment is one of our most important duties. That is why we have introduced an environment management system with the goal of continuously improving company environmental protection. The environment management system is certified according to DIN EN ISO 14001.

Please help us fulfil this obligation by observing the environmental instructions in this manual:

- Chapter "*Packaging, transport and storage*"
- Chapter "*Disposal*"

3 Product description

3.1 Structure

Scope of delivery

The scope of delivery encompasses:

- VEGABAR 14 process pressure transmitter
- depending on the version, with plug connector, direct cable outlet or plug connector with connection cable
- Documentation
  - this operating instructions manual
  - Ex-specific "*Safety instructions*" (with Ex versions)
  - if necessary, further certificates

Structure

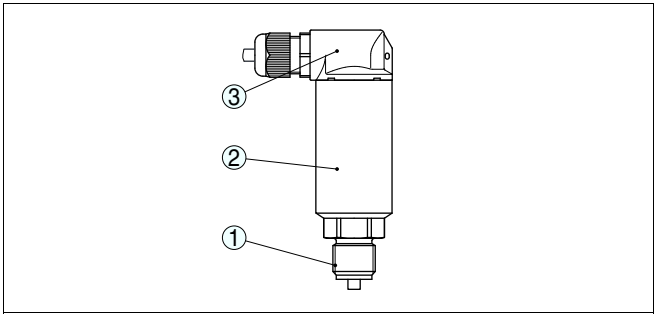

Fig. 1: VEGABAR 14 with cable outlet

1 Process fitting
2 Housing with electronics
3 Cable outlet

Type label

The type label contains the most important data for identification and use of the instrument:

- Article number
- Serial number
- Technical data
- Article numbers, documentation

With the serial number, you can access the delivery data of the instrument via www.vega.com, "*VEGA Tools*" and "*serial number search*". In addition to the type label outside, you can also find the serial number on the inside of the instrument.

3.2 Principle of operation

Application area

VEGABAR 14 is a pressure transmitter for measurement of gauge pressure, absolute pressure or vacuum. Measured products are gases, vapours and liquids.

Functional principle

The sensor element is the CERTEC® measuring cell with rugged ceramic diaphragm. The process pressure causes a capacitance change in the measuring cell via the ceramic diaphragm. This change is converted into an appropriate output signal and outputted as measured value.

Voltage supply

Two-wire electronics 4 … 20 mA for power supply and measured value transmission over the same cable.

3.3 Operation

The instrument offers no adjustment options.

3.4 Packaging, transport and storage

Packaging

The device was protected by packaging during transport. Its capacity to handle normal loads during transport is assured by a test according to DIN EN 24180.

The packaging of standard instruments consists of environment-friendly, recyclable cardboard. For special versions, PE foam or PE foil is also used. Dispose of the packaging material via specialised recycling companies.

Transport

Transport must be carried out under consideration of the notes on the transport packaging. Nonobservance of these instructions can cause damage to the device.

Transport inspection

The delivery must be checked for completeness and possible transit damage immediately at receipt. Ascertained transit damage or concealed defects must be appropriately dealt with.

Storage

Up to the time of installation, the packages must be left closed and stored according to the orientation and storage markings on the outside.

Unless otherwise indicated, the packages must be stored only under the following conditions:

- Not in the open
- Dry and dust free
- Not exposed to corrosive media
- Protected against solar radiation
- Avoiding mechanical shock and vibration

Storage and transport temperature

- Storage and transport temperature see chapter "*Supplement - Technical data - Ambient conditions*"
- Relative humidity 20 … 85 %

4 Mounting

4.1 General instructions

Suitability for the process conditions

Make sure that all parts of the instrument exposed to the process, in particular the sensor element, process seal and process fitting, are suitable for the existing process conditions. These include above all the process pressure, process temperature as well as the chemical properties of the medium.

You can find the specifications in chapter "*Technical data*" or on the type label.

4.2 Instructions for installation

Mounting position

VEGABAR 14 functions in any installation position. It is mounted according to the same directives as a manometer (DIN EN 839-2).

Information:
We recommend using lock fittings, measuring instrument holders and siphons from our line of accessories.

4.3 Mounting steps

Welding the socket

For mounting VEGABAR 14, a welded socket is required. You can find these components in the supplementary instructions manual "*Welded socket and seals*".

Sealing/Screwing in

Use the attached seal:

- Process fitting GV, GB and GP

- or -

Seal the thread with teflon, hemp or a similar resistant seal material:

- Process fitting GN

→ Screw VEGABAR 14 into the welded socket. Tighten the hexagon screw on the process fitting. Wrench size, see chapter "*Dimensions*", torque see chapter "*Technical data*".

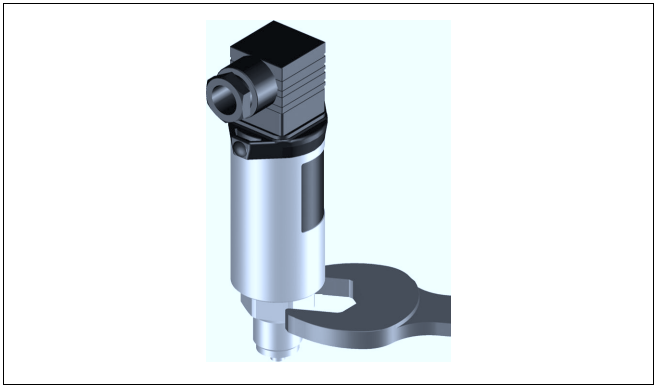

Fig. 2: Installation of VEGABAR 14

5 Connecting to power supply

5.1 Preparing the connection

Note safety instructions

Always keep in mind the following safety instructions:

- Connect only in the complete absence of line voltage
- If voltage surges are expected, install overvoltage arresters

Tip:
We recommend VEGA overvoltage arrester ÜSB 62-36G.X.

Take note of safety instructions for Ex applications

In hazardous areas you must take note of the respective regulations, conformity and type approval certificates of the sensors and power supply units.

Select power supply

The supply voltage and the current signal are carried on the same two-wire connection cable.

Provide a reliable separation between the supply circuit and the mains circuits according to DIN VDE 0106 part 101.

VEGA power supply units VEGATRENN 149AEx, VEGASTAB 690, VEGADIS 371 as well as all VEGAMETs meet this requirement. When using one of these instruments, protection class III is ensured for VEGABAR 14.

Keep in mind the following additional factors that influence the operating voltage:

- Output voltage of the power supply unit can be lower under nominal load (with a sensor current of 20.5 mA or 22 mA in case of fault message)
- Influence of additional instruments in the circuit (see load values in chapter "*Technical data*")

Select connection cable

The instrument is connected with standard two-wire cable without screen. If electromagnetic interference is expected which is above the test values of EN 61326 for industrial areas, screened cable should be used.

Use cable with round cross-section. A cable outer diameter of 5 … 9 mm (0.2 … 0.35 in) ensures the seal effect of the cable gland. If you are using cable with a different diameter or cross-section, exchange the seal or use a suitable cable gland.

Cable screening and grounding

Connect the cable screen on both ends to ground potential.

If potential equalisation currents are expected, the connection on the processing side must be made via a ceramic capacitor (e. g. 1 nF, 1500 V). The low frequency potential equalisation currents are thus suppressed, but the protective effect against high frequency interference signals remains.

Warning:
Within galvanic plants as well as vessels with cathodic corrosion protection there are considerable potential differences. Considerably equalisation currents can be caused via the cable scrren when the screen is earthed on both ends. To avoid this, the cable screen must only connected to ground potential on one side of the switching cabinet in such applications. The cable screen must **not** be connected to the internal ground terminal in the sensor and the outer ground terminal on the housing **not** to the potential equalisation!

Information:
The metal parts of the instrument (antenna, transmitter, concentric tube, etc.) are conductive connected with the inner and outer ground terminal on the housing. This connection exists either directly metallic or with instruments with external electronics via the screen of the special connection cable. You can find specifications to the potential connections within the instrument in chapter "*Technical data*".

Select connection cable for Ex applications

Take note of the corresponding installation regulations for Ex applications.

5.2 Connection procedure

Connection via angle plug connector

Proceed as follows:

1 Loosen the screw on the rear of the plug connector
2 Remove the plug connector and seal from VEGABAR 14
3 Remove the plug insert out of the plug housing

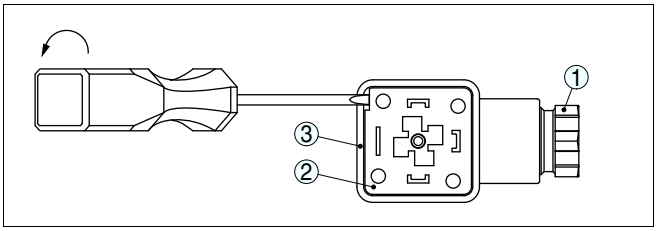

Fig. 3: Loosen the plug insert

1 Cable gland
2 Plug insert
3 Plug housing

4 Remove approx. 5 cm of the cable mantle, strip approx. 1 cm insulation from the individual wires
5 Lead the cable through the cable gland into the plug housing
6 Connect the wire ends to the screw terminals according to the wiring plan

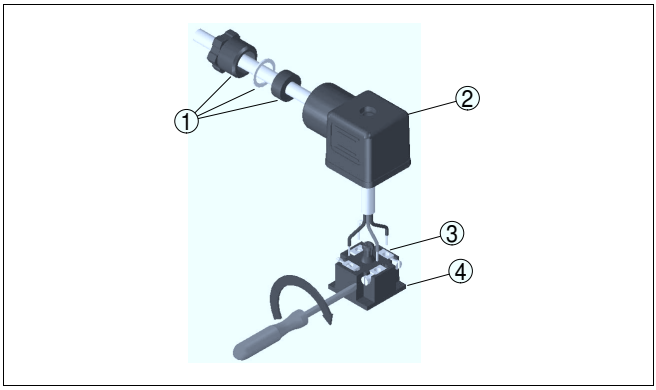

Fig. 4: Connection to the screw terminals

1 Cable gland
2 Plug housing
3 Plug insert
4 Plug seal

7 Snap the plug insert into the plug housing and insert the sensor seal

8 Plug the plug insert with seal to VEGABAR 14 and tighten the screw

The electrical connection is finished.

Connection via angle plug connector with hinged cover

Proceed as follows:

1 Loosen the screw in the cover of the plug connector

2 Open the cover and remove it

3 Press the plug insert downwards

4 Loosen the screws of the strain relief and cable entry

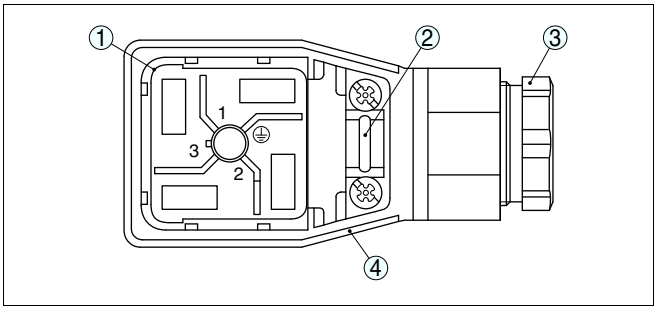

Fig. 5: Loosen the plug insert

1 Plug insert
2 Strain relief
3 Cable gland
4 Plug housing

5 Remove approx. 5 cm of the cable mantle, strip approx. 1 cm insulation from the individual wires

6 Lead the cable through the cable gland into the plug housing

7 Connect the wire ends to the screw terminals according to the wiring plan

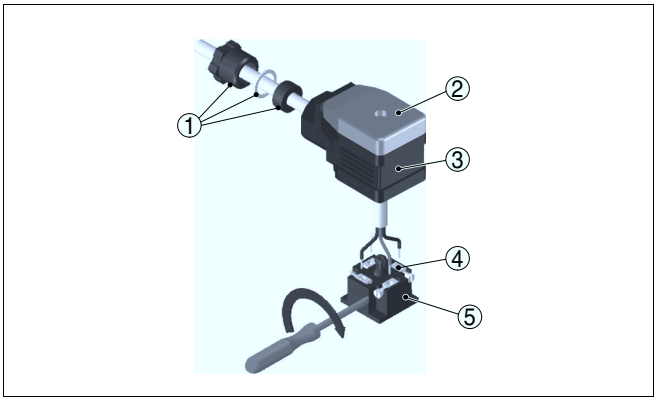

Fig. 6: Connection to the screw terminals

1 Cable gland
2 Cover
3 Plug housing
4 Plug insert
5 Plug seal

8 Snap the plug insert into the plug housing and insert the sensor seal

Information:
Note the correct arrangement, see illustration

9 Tighten the screws on the strain relief and cable entry

10 Hook in the cover and push onto the plug connection, tighten cover screw

11 Plug the plug insert with seal to VEGABAR 14 and tighten the screw

The electrical connection is finished.

5.3 Wiring plan

Angled plug connector according to ISO 4400

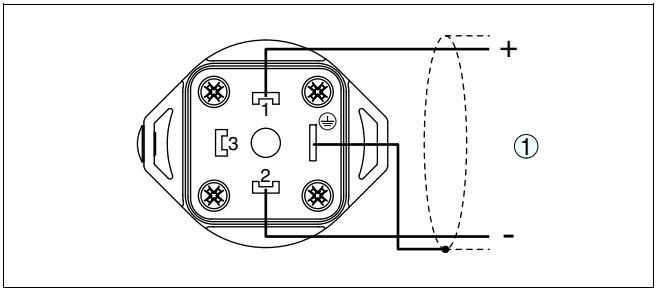

Fig. 7: Wiring plan plug connector according to ISO 4400, view to the connection on the instrument side

1 Voltage supply and signal output

Round plug connector M12 x 1

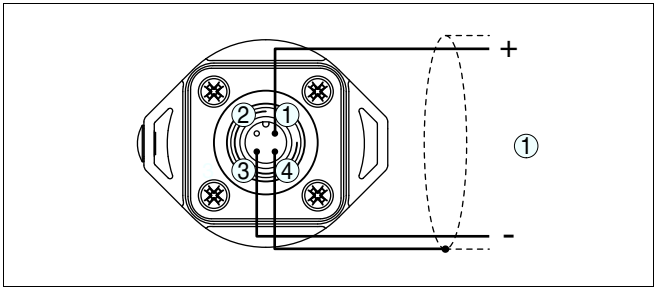

Fig. 8: Wiring plan round plug connector M12 x 1, view to the connection on the instrument side

1 Voltage supply and signal output

Connection via confectioned cable with 4-pin socket M12 x 1
As an option, the instrument is supplied with a confectioned cable with 4-pin socket M12 x 1. The following table shows the wire assignment of the socket.

Wire colour	Connector
Brown	1
White	2
Blue	3
Black	4

Direct cable outlet

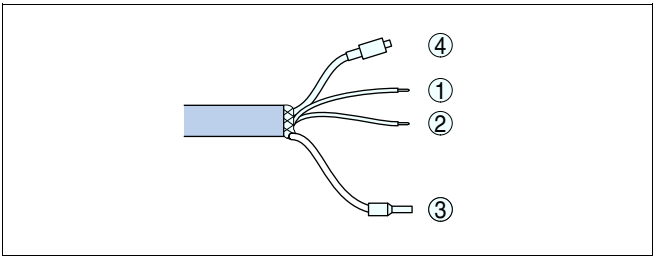

Fig. 9: Wiring plan cable outlet[1)]

1 brown (+) power supply and signal output
2 blue (-) power supply and signal output
3 Cable screening
4 Breather capillaries

5.4 Switch-on phase

After connecting VEGABAR 14 to power supply or after a voltage recurrence, the instrument carries out a self-check:

- Internal check of the electronics
- 4 … 20 mA output jumps to the fault signal 22 mA

Then VEGABAR 14 delivers a current of 4 … 20 mA to the cable. The value corresponds to the actual level as well as to settings already carried out, e.g. the factory setting.

1) The other cables are not connected.

6 Set up

6.1 Setup steps

After mounting and electrical connection, VEGABAR 14 is ready for operation.

VEGABAR 14 delivers a current of 4 … 20 mA corresponding to the actual process pressure.

Further settings are not necessary.

7 Maintenance and fault rectification

7.1 Maintenance

If the instrument is used properly, no special maintenance is required in normal operation.

7.2 Remove interferences

Reaction when malfunctions occur

The operator of the system is responsible for taking suitable measures to rectify faults.

Failure reasons

VEGABAR 14 offers maximum reliability. Nevertheless, faults can occur during operation. These may be caused by the following, e.g.:

- Sensor
- Process
- Voltage supply
- Signal processing

Fault rectification

The first measure to be taken is to check the output signal. In many cases, the causes can be determined this way and the faults rectified.

24 hour service hotline

Should these measures not be successful, please call in urgent cases the VEGA service hotline under the phone no. **+49 1805 858550**.

The hotline is available to you 7 days a week round-the-clock. Since we offer this service world-wide, the support is only available in the English language. The service is free of charge, only the standard telephone costs will be charged.

Checking the 4 … 20 mA signal

? 4 … 20 mA signal not stable

- no atmospheric pressure compensation

→ Check the pressure compensation in the plug or via the capillaries

? No 4 … 20 mA signal

- Connection to voltage supply wrong

→ Check connection according to chapter "*Connection steps*" and if necessary, correct according to chapter "*Wiring plan*"

- No voltage supply

→ Check cables for breaks; repair if necessary

- Operating voltage too low or load resistance too high

→ Check, adapt if necessary

? Current signal 22 mA

- electronics module or measuring cell defective

→ Exchange the instrument or send it in for repair

In Ex applications, the regulations for the wiring of intrinsically safe circuits must be observed.

Reaction after fault rectification

Depending on the reason for the fault and the measures taken, the steps described in chapter "*Set up*" may have to be carried out again.

7.3 Instrument repair

If a repair is necessary, please proceed as follows:

You can download a return form (23 KB) from our Internet homepage www.vega.com under: "*Downloads - Forms and certificates - Repair form*".

By doing this you help us carry out the repair quickly and without having to call back for needed information.

- Print and fill out one form per instrument
- Clean the instrument and pack it damage-proof
- Attach the completed form and, if need be, also a safety data sheet outside on the packaging
- Please ask the agency serving you for the address of your return shipment. You can find the respective agency on our website www.vega.com under: "*Company - VEGA worldwide*"

8 Dismounting

8.1 Dismounting steps

Warning:
Before dismounting, be aware of dangerous process conditions such as e.g. pressure in the vessel, high temperatures, corrosive or toxic products etc.

Take note of chapters "*Mounting*" and "*Connecting to power supply*" and carry out the listed steps in reverse order.

8.2 Disposal

The instrument consists of materials which can be recycled by specialised recycling companies. We use recyclable materials and have designed the electronics to be easily separable.

WEEE directive 2002/96/EG
This instrument is not subject to the WEEE directive 2002/96/EG and the respective national laws. Pass the instrument directly on to a specialised recycling company and do not use the municipal collecting points. These may be used only for privately used products according to the WEEE directive.

Correct disposal avoids negative effects on humans and the environment and ensures recycling of useful raw materials.

Materials: see chapter "*Technical data*"

If you have no way to dispose of the old instrument properly, please contact us concerning return and disposal.

9 Supplement

9.1 Technical data

General data	
Parameter, pressure	Gauge pressure, absolute pressure, vacuum
Measuring principle	Ceramic-capacitive, dry measuring cell
Communication interface	None

Materials and weights	
Materials, wetted parts	
– Process fitting	316L, PVDF
– Diaphragm	sapphire ceramic® (99.9 % oxide ceramic)
– Measuring cell seal	FKM (VP2/A), EPDM (A+P 75.5/KW75F)
Materials, non-wetted parts	
– Electronics housing	brass, nickel-plated
Materials, non-wetted parts, version with plug connector ISO 4400	
– Contact, housing plug	PA
– Cover screw	StSt
– Contact surface	Sn
– Plug seal	Silicone
Materials, non-wetted parts, version with plug connector M12 x 1	
– Contact support	PA
– Contacts	CuZn, nickel layer and 0.8 µm gold-plated
– Plug seal	FKM
Materials, non-wetted parts, connection cable with plug connector M12 x 1 (optional)	
– Grip body, plug connector	PA
– Compression nut	Zinc die casting
– Cable/wire insulation	PVC
Materials, non-wetted parts, verson with cable outlet	
– Cable gland	PA
– Cable	PE
Ohmic contact	Between ground terminal, housing and process fitting
Torque max.[2)]	50 Nm (36.88 lbf ft)
Weight approx.	0.25 kg (0.55 lbs)

Output variable	
Output signal	4 … 20 mA

[2)] With material process fitting 316L.

Range	3.8 … 20.5 mA
Fault signal	22 mA
Signal resolution	5 µA
Max. output current	22 mA
Run-up time	approx. 2 s
Dead time	≤ 10 ms
Step response time	≤ 20 ms (0 … 63 %)

Input variable

The overload specifications are only an overview and refer to the measuring cell. Limitations due to material and process fitting version are possible. The specifications on the type label are applicable.

Nominal range	Overload capacity, max. pressure	Overload capacity, min. pressure
Gauge pressure		
0 … 0.05 bar/0 … 5 kPa	15 bar/1500 kPa	-0.2 bar/-20 kPa
0 … 0.1 bar/0 … 10 kPa	15 bar/1500 kPa	-0.2 bar/-20 kPa
0 … 0.25 bar/0 … 25 kPa	30 bar/3000 kPa	-0.8 bar/-80 kPa
0 … 0.4 bar/0 … 40 kPa	30 bar/3000 kPa	-0.8 bar/-80 kPa
0 … 0.6 bar/0 … 60 kPa	35 bar/3500 kPa	-1 bar/-100 kPa
0 … 1 bar/0 … 100 kPa	35 bar/3500 kPa	-1 bar/-100 kPa
0 … 1.6 bar/0 … 160 kPa	50 bar/5000 kPa	-1 bar/-100 kPa
0 … 2.5 bar/0 … 250 kPa	50 bar/5000 kPa	-1 bar/-100 kPa
0 … 4 bar/0 … 40 kPa	65 bar/6500 kPa	-1 bar/-100 kPa
0 … 6 bar/0 … 600 kPa	90 bar/9000 kPa	-1 bar/-100 kPa
0 … 10 bar/0 … 1000 kPa	90 bar/9000 kPa	-1 bar/-100 kPa
0 … 16 bar/0 … 1.6 MPa	130 bar/13 MPa	-1 bar/-100 kPa
0 … 25 bar/0 … 2.5 MPa	130 bar/13 MPa	-1 bar/-100 kPa
0 … 40 bar/0 … 4 MPa	200 bar/20 MPa	-1 bar/-100 kPa
0 … 60 bar/0 … 6 MPa	200 bar/20 MPa	-1 bar/-100 kPa
-0.1 … 0.1 bar/-10 … 10 kPa	20 bar/2000 kPa	-0.4 bar/-40 kPa
-0.2 … 0.2 bar/-20 … 20 kPa	30 bar/3000 kPa	-0.8 bar/-80 kPa
-0.5 … 0.5 bar/-50 … 50 kPa	35 bar/3500 kPa	-1 bar/-100 kPa
-1 … 0.6 bar/-100 … 60 kPa	50 bar/5000 kPa	-1 bar/-100 kPa
-1 … 1 bar/-100 … 100 kPa	50 bar/5000 kPa	-1 bar/-100 kPa
-1 … 1.5 bar/-100 … 150 kPa	50 bar/5000 kPa	-1 bar/-100 kPa
-1 … 3 bar/-100 … 300 kPa	65 bar/6500 kPa	-1 bar/-100 kPa
-1 … 5 bar/-100 … 500 kPa	90 bar/9000 kPa	-1 bar/-100 kPa
-1 … 9 bar/-100 … 900 kPa	90 bar/9000 kPa	-1 bar/-100 kPa
-1 … 15 bar/-100 … 1500 kPa	130 bar/13000 kPa	-1 bar/-100 kPa

Nominal range	Overload capacity, max. pressure	Overload capacity, min. pressure
-1 … 25 bar/-1 … 2.5 MPa	130 bar/13 MPa	-1 bar/-100 kPa
-1 … 40 bar/-1 … 4 MPa	200 bar/20 MPa	-1 bar/-100 kPa
-1 … 60 bar/-1 … 6 MPa	200 bar/20 MPa	-1 bar/-100 kPa
Absolute pressure		
0 … 1 bar/0 … 100 kPa	35 bar/3500 kPa	
0 … 1.6 bar/0 … 160 kPa	50 bar/5000 kPa	
0 … 2.5 bar/0 … 250 kPa	50 bar/5000 kPa	
0 … 4 bar/0 … 400 kPa	65 bar/6500 kPa	
0 … 6 bar/0 … 600 kPa	90 bar/9000 kPa	
0 … 10 bar/0 … 1 MPa	90 bar/9 MPa	
0 … 16 bar/0 … 1.6 MPa	130 bar/13 MPa	
0 … 25 bar/0 … 2.5 MPa	200 bar/20 MPa	
0 … 40 bar/0 … 4 MPa	200 bar/20 MPa	
0 … 60 bar/0 … 6 MPa	200 bar/20 MPa	

Reference conditions and actuating variables (similar to DIN EN 60770-1)

Reference conditions according to DIN EN 61298-1

- Temperature: +15 … +25 °C (+59 … +77 °F)
- Relative humidity: 45 … 75 %
- Air pressure: 860 … 1060 mbar/86 … 106 kPa (12.5 … 15.4 psi)

Determination of characteristics	Limit point adjustment according to IEC 61298-2
Characterstic curve	Linear
Reference installation position	upright, diaphragm points downward
Influence of the installation position	< 0.2 mbar/20 Pa (0.003 psig)

Deviation determined according to the limit point method according to IEC 60770[3)]

Deviation	< 0.3 %

Influence of the ambient temperature[4)]

Average temperature coefficient of the zero signal[5)]	< 0.15 %/10 K

Long-term stability (similar to DIN 16086, DINV 19259-1 and IEC 60770-1)

Long-term drift of the zero signal[6)]	< 0.1 %/2 years

3) Relating to the nominal measuring range, incl. non-linearity, hysteresis and non-reproducibility.
4) Relating to the nominal measuring range.
5) In the compensated temperature range of 0 … +80 °C (+32 … +176 °F), reference temperature 20 °C (68 °F).
6) Relating to the nominal measuring range.

Ambient conditions

Ambient temperature	
– Version with plug connector	-20 … +85 °C (-4 … +185 °F)
– Version with cable outlet	-20 … +60 °C (-4 … +140 °F)
Storage and transport temperature	
– Version with plug connector	-40 … +100 °C (-40 … +212 °F)
– Version with cable outlet	-40 … +60 °C (-40 … +140 °F)

Process conditions

The specifications of the pressure stage and the product temperature are used as an overview. The specifications of the type label are applicable.

Pressure stage, process fitting	
– Thread 316L	PN 60
– Thread PVDF	PN 10
Product temperature depending on the measuring cell seal	
– FKM (VP2/A)	-20 … +100 °C (-4 … +212 °F)
– EPDM (A+P 75.5/KW75F)	-40 … +100 °C (-40 … +212 °F)
Vibration resistance	mechanical vibrations with 4 g and 5 … 100 Hz[7)]

Electromechanical data

Angled plug connector	
– Version	4-pin according to ISO 4400
– Screw terminals for cable cross-section up to	2.5 mm^2 (AWG 14)
– Cable gland	M16 (for cable: ø 4.5 … 10 mm)
Circular plug connector	4-pin with screwed connection M12 x 1
Cable outlet	
– Length	5 m (16.4 ft)
– Min. bending radius	25 mm (with 25 °C/77 °F)
– Diameter approx.	6 mm

Voltage supply

Operating voltage	8 … 30 V DC
Permissible residual ripple	U_{ss} < 1 V
Load	see diagram

7) Tested according to the guidelines of German Lloyd, GL directive 2.

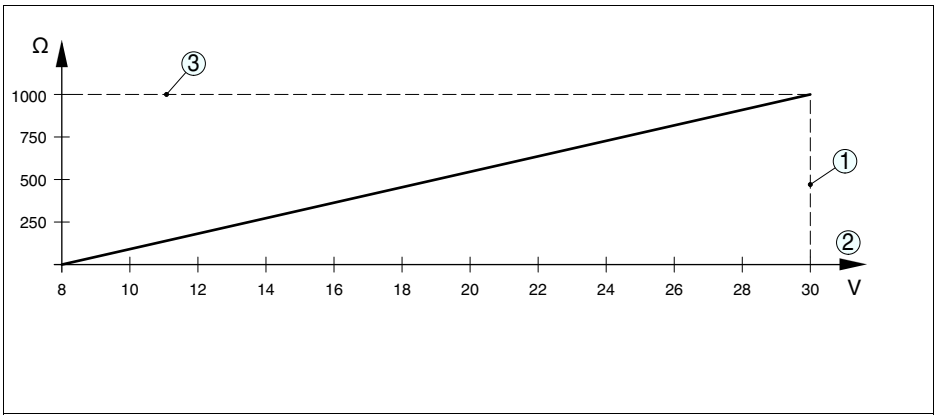

Fig. 10: Voltage diagram

1 Voltage limit
2 Operating voltage
3 Max. load

Electrical protective measures

Protection rating[8)]	
– With plug M12 x 1 or according to ISO 4400	IP 65
– with direct cable outlet	IP 67
Protection class	III
Overvoltage category	III

Approvals

Instruments with approvals can have different technical data depending on the version.

That's why the associated approval documents have to be noted with these instruments. They are part of the delivery or can be downloaded under www.vega.com via "*VEGA Tools*" and "*serial number search*" as well as via "*Downloads*" and "*Approvals*".

8) According to EN 60529/IEC 529.

9.2 Dimensions

VEGABAR 14

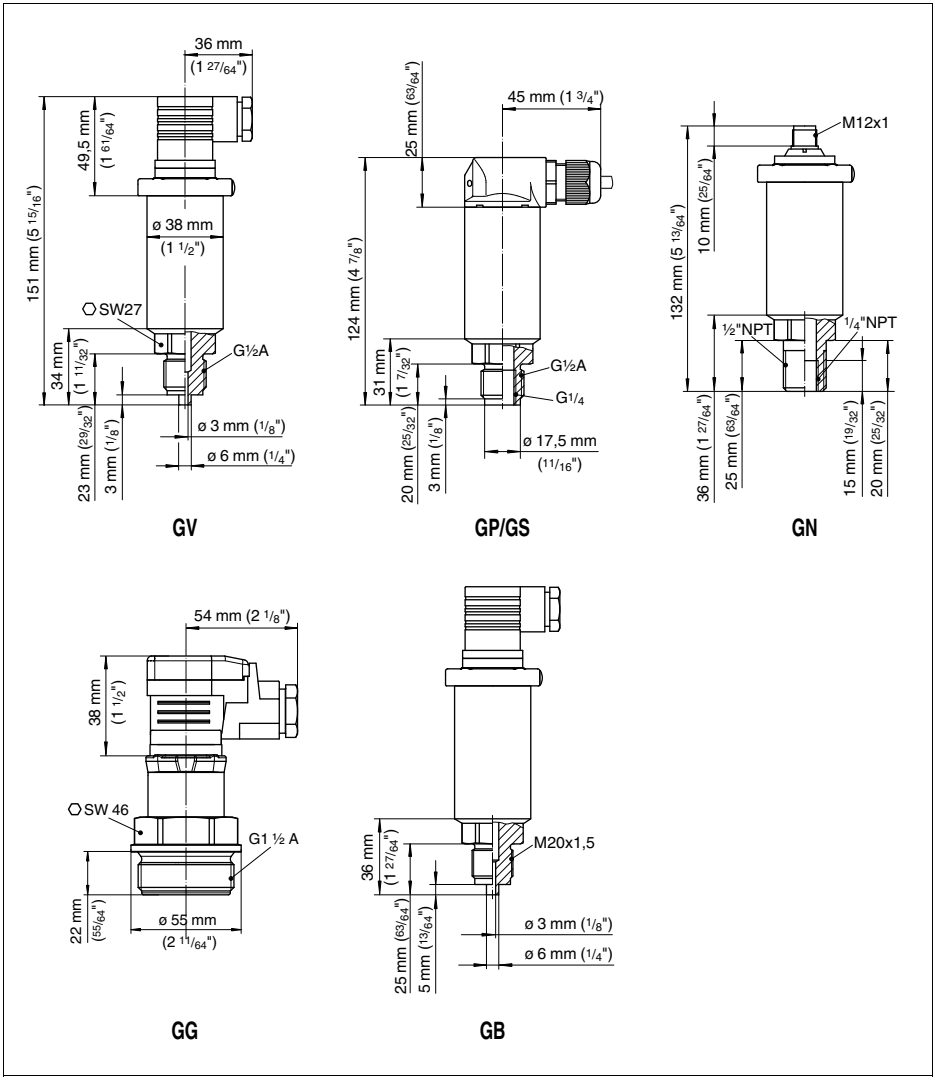

Fig. 11: VEGABAR 14 GV = G½ A manometer connection EN 837, version with angled plug connector, GP/GS = G½ A inner G¼ A, version with cable outlet, GN = ½ NPT, version with round plug connector, GG = G1½ A, version with angled plug connector with hinged cover, GB = M20 x 1.5 manometer connection EN 837, version with angled plug connector

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Printing date:

VEGA Grieshaber KG
Am Hohenstein 113
77761 Schiltach
Germany
Phone +49 7836 50-0
Fax +49 7836 50-201
E-mail: info.de@vega.com
www.vega.com

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